minute volume rose by 700 per cent. in healthy persons but only by 170 per cent. in cardiac patients; the carbon dioxide in the inspired air at the end of the experiment was between 7.11 and 9.22 per cent. for the normals and between 4.27 and 5.62 per cent. for the cardiacs. The cardiac patients became dyspneic when the carbon dioxide in the inspired air was but little more than half that required to produce dyspnea in normal subjects. This does not mean that cardiac patients are more susceptible to carbon dioxide. It means that cardiac patients become dyspneic more easily than healthy subjects because of their inability to increase the depth of breathing in a normal manner and thus prevent the accumulation of carbon dioxide in the blood and tissues.

PEDIATRICS

UNDER THE CHARGE OF

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Comparison between Clinical Examination and Roentgenograms in Diseases of the Chest.—CHAPIN (*Am. Jour. Obst. and Dis. of Women and Children*, October, 1917, vol. lxxvi, No. 478). Owing to the difficulty of keeping little children quiet during exposure it is often hard to interpret heart shadows. A twisting of the body may cause a rotation of the chest so as to exaggerate the heart shadow in any direction. Of 15 cases studied both by *x*-rays and by physical examination, 7 showed an agreement, or partly agreed, and 7 failed to show a correspondence in the conclusions reached by the two methods. In regard to the lungs a combined study was made in 97 cases. There was agreement in 77 and disagreement in 20 cases. Of the latter 5 gave evidence of lobar pneumonia that was not detected by physical examination; 2 gave physical signs of pneumonia, which were not confirmed by *x*-rays; 3 showed physical signs of bronchopneumonia not found in *x*-rays. As a general rule it was found that the *x*-rays would often give a shadow in the absence of physical signs in congestion, small consolidations, hilum infiltrations, interlobar pleurisy, miliary tuberculosis, and mediastinal tumors.

Hunger in the Infant.—TAYLOR (*Am. Jour. Dis. of Children*, October, 1917, vol. xiv, No. 4) quotes previous writers confirming the fact that hunger contractions are greater in the newborn infant, and states that still greater hunger contractions are present in the prematurely born infants. No relation exists between cyanosis and hunger contractions. In young infants the taking of food into the mouth does not inhibit hunger contractions, but this does occur in older children. This is psychic in character. Even in younger infants the presence of food in the stomach causes reflex inhibition, although in the younger infants it may be only partly developed. During the hunger state

successive automatic sucking movements (each sucking act being the stimulus for its successor) are present. In normally developing breast-fed infants hunger is not ordinarily an immediate cause of crying. In premature infants under one month the average time required for the development of hunger is one hour and forty minutes, with a maximum of two hours and twenty minutes and a minimum of forty minutes. In full-term infants under two weeks the average time is two hours and fifty minutes with a maximum of four hours and a minimum of two hours. In infants from two weeks to four months the average time is three hours and forty minutes with a maximum of four hours and thirty-five minutes and a minimum of three hours and twelve minutes. This time for the development of hunger in any one infant is fairly constant. In chronic nourishment disturbance the interval is shorter, as it is also when food is poorly tolerated. The hunger contractions occur long before the stomach is empty, so that is not necessarily an indication for more food. Feeble nursing power is not due to derangement of hunger apparatus. In pyloric stenosis hunger contractions are increased.

Appendicitis in Infants.—ABT (*Arch. Pediat.*, September, 1917, vol. xxxiv, No. 9). The diagnosis is very difficult as the symptoms vary greatly from those in older children and adults. The almost complete absence of subjective symptoms in infants makes the diagnosis almost impossible. Pain and tenderness are difficult to elicit and more difficult to localize. Vomiting occurs so frequently in the gastro-intestinal, nutritional and toxic diseases of infants that it is of little value. Muscle spasm or rigidity of the right rectus may be present early, but it is difficult to elicit. Manifest chill, which is rare in childhood, is sometimes noticed early. Temperature is unreliable. The pulse usually follows the temperature. Rupture of the appendix may give temporary amelioration of the symptoms. Constipation is the rule and occurs among the more severe types. Diarrhea is present in the milder types. Traumatism may be a factor in the etiology. There is a hereditary predisposition occurring in certain families. Foreign bodies such as concretions or worms may be the cause. Blood examination reveals a polymorphonuclear leukocytosis. In infants the diagnosis is extremely difficult and the mortality is very high. Rectal examination is of great value.

Empyema; Simple, Interrupted, and Continuous Aspiration.—RICHTER (*Arch. Pediat.*, September, 1917, vol, xxxiv, No. 9). The mortality in this condition is very high. Holt reported a loss of 50 per cent. in a series of 150 cases. Seventy-five per cent. of those in the first year of life were lost. The deaths are due to (1) loss of proteid material from prolonged suppuration. (2) Intoxication of suppuration. (3) Collapse of the infants' lungs, the median diaphragm being so frail that the opposite lung loses much of its volume. The intoxication of suppuration may be controlled by drainage. Incision or drainage does good temporarily, but the child gradually fails and dies during the second, third, or fourth week. This is due to infection plus the loss of large quantities of fluids and proteids. The third factor above may develop acutely immediately after any drainage operation. Pus in pleura differs from abscess elsewhere. It becomes sterile if not con-